APPENDIX 15

SOUTH FORK AND LOWER MAINSTEM GUALALA ASSESSMENT FINDINGS AND DETAILS

Marshall Creek.

- Marshall Creek drains an area where the Central and Coastal Belts of the Franciscan Formation have been complexly faulted and shuffled. Large active earthflows within the Central Belt rocks are common along most the length of Marshall. Small (< 100 feet in greatest dimension) historically active slides that delivered into Marshall Creek are especially abundant in the lower reaches where the stream crosses the weak rocks of the Central Belt Franciscan Formation (DMG NCWAP).
- Conversions to pastureland have been the dominant form of historical use. Major portions of riparian areas were converted to pastureland (See Air Photos 30 and 31). A loop conversion project removed all downslope conifered areas eliminating the riparian zone throughout Wild Cattle Canyon, extending east in an arc connecting Palmer Canyon, during the later 1950s (CDF NCWAP). Sheep noted grazing in riparian zone in Palmer Canyon during a 1981 survey. A 2001 DFG NCWAP survey in Palmer Canyon found 35% pools. Substrate consisted of 47% cobble/ gravel, 30% boulders, and 12% silt and sand.
- A 1964 survey in Marshall Ck. from the mouth with the SF to 13 miles upstream found Coho present at 30/ 100 ft. reach and steelhead numbering 100/100 ft. length. Gravel suitable for spawning comprised 60% substrate. Pools comprised 50% stream reach with a maximum depth of 5 ft. Maximum water temperature measured 69F (P. Higgins Gualala Compilation).
- A 2001 DFG NCWAP survey reach of Marshall Ck. found 50% pools at 1.2 ft. average depth, to 50% riffles. Gravels measured to 60% total substrate, silt and sand 10%, and boulders 10%.

McKenzie Creek

- The McKenzie drains Kings Ridge, which is a small portion of a 4kmx8km area that was uplifted no later than the last 5 million years as a result of compression along the San Andreas Fault. See the geology report for explanation. Within this uplift, the upper two forks of McKenzie flow through parallel steep canyons flanked by debris slide slopes where the channels widen. The lower McKenzie narrows and flows southward across the uplift and joins Marshall.
- Numerous active earthflows occur along large portions of channels, even more abundant are dormant earthflows that potentially could be reactivated. In each of these landslide-impacted reaches, the channels widen (DMG NCWAP).
- A continuous wide belt of mature Douglas-fir occupied the lower and central reaches of McKenzie Ck. extending from the confluence with Marshall Ck. to Devils Rib Ridge. Parker and Pool (1964) surveyed this tributary to Marshall Ck. finding optimal steelhead habitat. Fine sediment only comprised 10% substrate with pools at 60% habitat by reach. Steelhead densities were estimated at 50/ 100 ft. length, and ratio of steelhead to roach were estimated at 95:5 (P. Higgins Gualala Compilation, 2001).
- The Upper McKenzie was then logged after the 1964 fisheries survey. The main haul road followed the stream channel. Numerous in stream landings are located throughout the basin (see Logging Impacts Map). The riparian zone was cleared of all overstory vegetation (CDF NCWAP).
- A 1999 stream survey found 43% pools by reach and 1.2 ft. depth, 23% riffles, and 29% flatwater. Substrate consisted of 47% cobble/ gravel, 30% boulders, and 12% silt and sand.
- Substantial post logging damage noted. The McKenzie Ck. sub-basin has been a high priority area with the Gualala Watershed Restoration Council. Numerousrestoration projects have been completed.
- Temperature data for two sites in McKenzie Creek were available for 2000 and 2001 for a total of four observations. MWATs ranged from 61-68 F (16-20 C), and seasonal maxima from 61-75 F (16-24 C). Both sites had higher seasonal maxima in 2001, from 61F to 75F and from 70F to 75F. The MWAT at one site, mck617, increased from 61F to 66F in 2001, and at the other, mck615, decreased from 68F to 66F. (WQ NCWAP)

Wild Hog Canyon Creek and Carson Creek

- Both creeks were logged during the late 1950s. The haul road and landing sites lined the main channel. Overstory riparian canopy was removed. In Wild Hog Canyon, a 1999 stream survey found 15% pools at medium depth 0.6 ft., 43% flatwater, and 32% dry units. Substrate consisted of 38% cobble/ gravel, 38% boulders, and 15% sand and silt. In Carson Ck. to the south, a 1999 survey found 43% pools at 1.1 ft. mean depth. Cobble gravel consisted of 58% total substrate, silt and sand at 17% and bedrock at 22%. (DFG NCWAP)

Camper Creek

- The 1999 survey found 43% pools at median 1.2 ft. depth. Cobble/ gravel consisted of 50% substrate, 21% bedrock, and 28% sand and silt. (DFG NCWAP)

UPPER AND LOWER PEPPERWOOD CREEKS.

Logged during the early 1960s. Main haul roads followed the stream channel among numerous instream landings (see Logging Impacts Map)(CDF NCWAP). .

Lower channel of Big Pepperwood Ck. aggraded by the late 1970s, diffused across the flood plain, lost channel identity. Little Pepperwood has less gravel substrate.

Large active slide on Robinson ridge extending to Little Pepperwood Ck. (GRI 96-404, 98-318).

Steelhead 1+ decreased from 153 to 48 from 1998 to 2001at sample station PPW2 respectively (GRI, 2001).

Temperature was monitored a four sites, three in Big Pepperwood, and one in Little Pepperwood, from 1994-2000, yielding 17 observations. MWATs ranged from 58-61 F (14-16 C), all but one observation within the fully supportive range. Seasonal maxima ranged from 58-64 F (15-18 C), all below the lethal level. No spatial nor temporal trends were obvious. (WQ NCWAP)

LOWER MAINSTEM GUALALA RIVER

Temperature data for the lower mainstem are available from one site downstream of the North Fork/South Fork confluence for 2000 and 2001. MWATs were 72 F (22 C) for both years, above the fully supportive range. Seasonal maxima were 73 F (23 C) for both years. There was no change in water temperature from the Lower South Fork station to the Lower Mainstem station in 2001 (no 2000 data for the lower South Fork station available).